Hunter and Udy to Take Office in Washington

As a result of the annual election, in which members voted by mail ballot, Ralph M. Hunter and Marvin J. Udy will be the new President and Vice-President, respectively, of The Electrochemical Society. The new officers will be introduced to the members at the annual business meeting, which will take place following the Society luncheon, on Monday, April 9th, at the Washington Meeting.

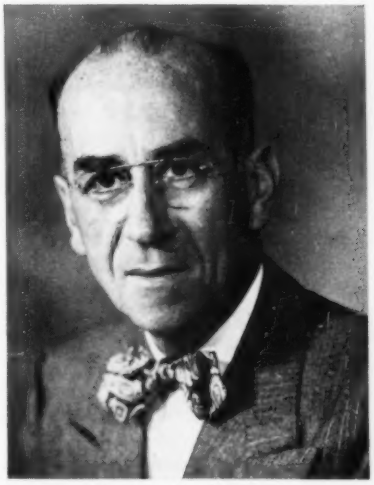
Dr. Hunter, Manager of the Electrochemical Division of The Dow Chemical Company, Midland, Michigan, replaces Charles L. Faust of Battelle Memorial Institute, Columbus, Ohio. Dr. Faust, as Past President, will continue to serve as a member of the Board of Directors.

Other Vice-Presidents, elected during the past two years and who will serve with Mr. Udy, are J. C. Warner, President of the Carnegie Institute of Technology, Pittsburgh, and R. J. McKay of the International Nickel Company, New York City. Dr. Henry B. Linford of Columbia University, New York City, and Mr. E. G. Widell, Radio Corporation of America, Harrison, New Jersey, will continue as Secretary and Treasurer, respectively.

In addition to the beginning terms for the new officers, an important change in the JOURNAL staff will become effective at the Washington Meeting. Dr. R. M. Burns, Chemical Director of Bell Telephone Laboratories, Murray Hill, New Jersey, has been named Chairman of the Publication Committee, replacing Dr. H. H. Uhlig who is retiring as Editor. Dr. Uhlig, in charge of the Corrosion Laboratory, Massachusetts Institute of Technology, Cambridge, has served as Editor of the JOURNAL for the past two years.

Richards Memorial Lecture

An interesting feature of the Washington Meeting will be the Richards Memorial Lecture, scheduled for 4:30 P.M., Monday, April 9th. The speaker at this time will be Dr. J. O'M. Bockris of the Imperial College of Science and Technology, London, England. Dr. Bockris is the official delegate of the Faraday Society to this meeting of The Electrochemical Society.



RALPH M. HUNTER

MARVIN J. UDY

Complete details about the Washington Convention schedule may be found in the program booklet, which has been mailed to all members. Dates of the Convention will be April 8, 9, 10, 11, and 12. Headquarters will be the Wardman Park Hotel.

Washington Technical Program

Monday, April 9, 1951

9:00 A.M.—Formal opening of the 99th Convention with Introduction by General Chairman Paul L. Howard and Response by President Charles L. Faust.

Electric Insulation

Monday, April 9, 1951
The Electrical Properties of Plastics
John J. Chapman presiding

This session has been arranged with the cooperation of the Society of Plastic Engineers.

9:15 A.M.—"The Use of Laminates in Electrochemical Industries" by J. C Pitzer, The Formica Company, Cincinnati, Ohio.

10:15 A.M.—"Dielectric Fatigue of Thermosetting Laminates" by Norman A. Skow, Sythane Corporation, Oaks, Pa.

10:45 A.M.—"The Dielectric Loss in Polyethylene Insulation and the Breakdown of Air at Radio Frequencies" by Donald L. Birx, Johns Hopkins University, Baltimore, Md.

11:15 A.M.—"Properties and Requirements of Plastics for Naval Use" by Leon L. Deer, U. S. Naval Ordnance Plant, Indianapolis, Ind.

11:45 A.M.—"The Effect of Moisture and Fungus upon Electrical Insulating Materials" by John M. Leonard, Naval Research Laboratory, Washington, D. C.

Electrophysics
J. A. Szilard presiding

2:00 P.M.—"The Dielectric Heating of Plastics" by M. P. Vore, Westinghouse Electric Corporation, Baltimore, Md.

2:30 P.M.—"The Use of Ultraviolet Radiation in Dielectric Research" by Harold C. Beachell, University of Delaware, Newark, Del.

3:15 P.M.—"The Breakdown of Electrical Insulation at High Frequencies" by John Dzimianski, Johns Hopkins Institute for Cooperative Research, Baltimore, Md.

3:45 P.M.—"Manufacture and Properties of Ozone" by Clark E. Thorp, Armour Research Foundation, Chicago, Ill.

Tuesday, April 10, 1951
Electrolytic Capacitors
Ralph A. Ruscetta presiding

9:00 A.M.—"A Survey of U. S. Patents Relating to the Electrolytic Capacitor" by L. W. Foster, R. A. Ruscetta, and S. Sass, General Electric Company, Pittsfield, Mass.

9:30 A.M.—"The Electrolytic Capacitor" by Alexander M. Georgiev, General Motors Corporation, Dayton, Ohio.

10:15 A.M.—"Aluminum Foil for Electrolytic Capacitors" by L. D. Byland and C. J. Hushen, Reynolds Metals Company, Richmond, Va.

10:45 A.M.—"A Note on the Nature of Thick Aluminum Oxide Film" by J. Burnham, G. Green, and P. Robinson, Sprague Electric Company, North Adams, Mass.

11:30 A.M.—"Electrolytic Capacitors at Low Temperatures" by C. D. Crater, Squier Signal Laboratory, Fort Monmouth, N. J.

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12:30 P.M.—"Glass Fiber Paper Manufacture" by Bourdon W. Scribner, National Bureau of Standards, Washington, D. C.

A special demonstration of the manufacture of paper made entirely of glass fibers will be made at the National Bureau of Standards Paper Mill, Van Ness and Connecticut Avenues, N. W. The run is scheduled at this time to permit interested members to see the demonstration and still attend the afternoon sessions.

Electrolytic Capacitors (cont'd.)
Ralph A. Ruscetta presiding

2:00 P.M.—"Factors Affecting the Measurement of Capacitor Temperature-Coefficient" by John A. Connor, Naval Research Laboratory, Washington, D. C.

2:30 P.M.—"Some Methods of Measuring the Temperature Coefficient of Capacitors" by David I. Troxel, Naval Research Laboratory, Washington, D. C.

3:00 P.M.—"Factors Affecting the Leakage of Electrolytic Capacitors" by Gaston Muriset, Standard Telephone et Radio S. A., Zurich, Switzerland.

3:45 P.M.—"Some Observations on the Theory of Tantalum Electrolytic Capacitors" by N. J. Krilanovich, National Bureau of Standards, Washington, D. C.

4:15 P.M.—"Tantalum Electrolytic Capacitors for Telephone Plant Use" by R. L. Taylor and M. Whitehead, Bell Telephone Laboratories, Inc., Murray Hill, N. J.

Wednesday, April 11, 1951
Wires and Cables
Ralph Hall presiding

The sessions on Wires and Cables have been arranged with the cooperation of the American Institute of Electrical Engineers.

9:00 A.M.—"The Electrical Properties of Some Liquid Fluorocarbons" by Robert C. Bowers, Naval Research Laboratory, Washington, D. C.

9:45 A.M.—"Sulfur Hexafluoride—Its Use as an Insulant in High Voltage Equipment" by John F. Gall, Pennsylvania Salt Manufacturing Company, Philadelphia, Pa.

10:30 A.M.—"New Developments in Cables" by J. A. Szilard and J. E. Waters, General Cable Corporation, Bayonne, N. J.

11:15 A.M.—"Asbestos—Its Preparation, Production, and Fabrication into Electric Insulation" by Jesse M. Weaver, Raybestos-Manhattan Incorporated, Manheim, Pa.

Wires and Cables (cont'd.)
Harold C. Beachell presiding

2:00 P.M.—"Progress in the Field of Magnet Wire" by Ralph Hall, Phelps Dodge Copper Products, Fort Wayne, Ind.

2:45 P.M.—"Life-Temperature Characteristics of Magnet-Wire Insulation at Elevated Temperatures" by A. T. McClinton, Naval Research Laboratory, Washington, D. C.

3:15 P.M.—"Glass Fibers—The Effect of Chemical Composition on their Properties" by William M. Temple, Glassfibers Incorporated, Waterville, Ohio.

4:00 P.M.—"The Determination of the Life of Magnet-Wire Insulation" by E. F. Seaman and T. D. Callinan, Navy Department, Washington, D. C.

Thursday, April 12, 1951

Inorganic and Organic Dielectrics
E. F. Seaman presiding

9:00 A.M.—"The Electrical Properties of Glass-Fiber Paper" by Thomas D. Callinan, Naval Research Laboratory, Washington, D. C.

9:45 A.M.—"'Terratex,' A New Material for Spacers and Insulators in Vacuum Tubes" by E. B. Fehr and A. P. Haase, General Electric Company, Schenectady, N. Y.

10:15 A.M.—"Sources of Muscovite Mica" by James J. Norton, U. S. Geological Survey, Department of the Interior, Washington, D. C.

11:00 A.M.—"New Casting Resins for Miniaturization" by Clinton Rector, National Engineering Products Company, Washington, D. C.

Electronics—Luminescence

Wednesday, April 11, 1951

H. C. Froelich presiding

9:00 A.M.—Introductory Remarks.

9:05 A.M.—Keynote Address, "The Discovery of New Phosphors," by Dr. K. H. Butler, Sylvania Electric Products Inc., Salem, Mass.

9:30 A.M.—"Luminescence of K_4MnCl_6 and KCl (Pb + Mn)" by Robert J. Ginther, Crystal Branch, Metallurgy Division, Naval Research Laboratory, Washington, D. C.

9:55 A.M.—"Calcium Zinc Silicate Phosphor" by Rudolph Nagy, C. K. Lui Wei, and R. W. Wollentin, Westinghouse Electric Corporation, Bloomfield, N. J.

10:20 A.M.—"Manganese Antimonates" by Virginia M. B. Hannaford and Keith H. Butler, Sylvania Electric Products Inc., Bayside, Long Island, N. Y., and Salem, Mass.

10:45 A.M.—"Excitation Spectra of Various Silicate Phosphors" by Alexander J. Oszy, Sylvania Electric Products Inc., Bayside, Long Island, N. Y.

11:10 A.M.—"The Effect of High

Energy Radiation on the Absorption and Luminescence of Glasses and Crystals" by James H. Schulman, Robert J. Ginther, and Clifford C. Klick, Crystal Branch, Metallurgy Division, Naval Research Laboratory, Washington, D. C.

11:35 A.M.—"The Thermoluminescence Characteristics of Silicate Phosphors Activated by Manganese and Arsenic" by C. Bull and G. F. J. Garlick, Physics Department, University of Birmingham, Birmingham, England.

12:00 M.—"Particle Formation in Gaseous Discharges" by Stephen Eros, Lamp Development Laboratory, General Electric Company, Nela Park, Cleveland, Ohio.

Electronics-Luminescence (cont'd.)
Arthur L. Smith presiding

2:00 P.M.—"The Effect of Temperature on Emission of Fluorescent Lamp Phosphors" by Charles W. Jerome, Sylvania Electric Products Inc., Salem, Mass.

2:25 P.M.—"The Function of Oxygen in Zinc Sulfide Phosphors" by F. A. Kroeger and J. A. M. Dikhoff, Research Laboratories, N. V. Philips' Gloeilampenfabrieken, Eindhoven, Holland

2:50 P.M.—"Temperature Dependence of Infrared Quenching in ZnS Phosphors" by B. Goldstein and J. J. Dropkin, Polytechnic Institute of Brooklyn, Brooklyn, N. Y.

3:15 P.M.—"Temperature Dependence of the Infrared Stimulability of the SrS:Ce:Sm Phosphor from −195°C to 150°C" by J. J. Dropkin and S. Fischler, Polytechnic Institute of Brooklyn, Brooklyn, N. Y.

3:40 P.M.—"Electrolytic Determination of Cadmium in Zinc Sulfide-Cadmium Sulfide Phosphors" by Robert Bastian, Richard Weberling, and Frank Palilla, Sylvania Electric Products Inc., Kew Gardens, N. Y.

4:05 P.M.—"Calcium Phosphate Phosphor Activated with Cerium and Manganese" by H. C. Froelich and J. M. Margolis, Lamp Development Laboratory, General Electric Company, Nela Park, Cleveland, Ohio.

4:30 P.M.—"Absorption, Reflection, Luminescence Emission, and Excitation Measurements with the Beckman Model DU Quartz Spectrophotometer" by Clifford C. Klick and R. G. Stokes, Crystal Branch, Metallurgy Division, and J. G. Schumacher, Engineering Shops Branch, Engineering Services Division, Naval Research Laboratory, Washington, D. C.

Thursday, April 12, 1951

Electronics-Luminescence (cont'd.)
C. W. Jerome presiding

9:00 A.M.—"Zinc-Magnesium Oxide and Zinc-Magnesium Sulfide Phosphors" by Arthur L. Smith, Tube Department, Radio Corporation of America, Lancaster, Pa.

9:25 A.M.—"An Arsenic-Activated Zinc Sulfide Phosphor" by Jerome S. Prener, Research Laboratory, General Electric Company, Schenectady, N. Y.

9:50 A.M.—"Barium Titanium Phosphate: A New Phosphor" by S. T. Henderson and P. W. Ranby, Thorn Electrical Industries, Limited, London, England.

10:15 A.M.—"Direct Excitation of Phosphors by Electric Fields" by Elmer C. Payne, Eric L. Mager, and Charles W. Jerome, Sylvania Electric Products Inc., Salem, Mass.

10:40 A.M.—"Saturation and Voltage Effects in Phosphors Excited by Electron Bombardment" by P. H. Dowling and J. R. Sewell, Philips Laboratories, Inc., Irvington on Hudson, N. Y.

11:05 A.M.—"Excitation Spectra of Calcium Halophosphate" by Alexander J. Oszy and Keith H. Butler, Sylvania Electric Products Inc., Bayside, Long Island, N. Y., and Salem, Mass.

11:30 A.M.—"Silver as an Activator of Halophosphate Phosphors" by P. W. Ranby, Thorn Electrical Industries, Limited, London, England.

11:55 A.M.—"Luminescent Barium and Magnesium Halophosphates" by J. T. Anderson and R. S. Wells, Research Laboratories, British Thomson-Houston Company, Ltd., Rugby, England.

Electronics-Luminescence (cont'd.)
R. J. Ginther presiding

2:00 P.M.—"Copper-Activated Aluminosilicate Phosphors" by Esther W. Claffy and James H. Schulman, Crystal Branch, Metallurgy Division, Naval Research Laboratory, Washington, D. C.

2:25 P.M.—"Cadmium Chlorophosphate Phosphors" by R. W. Wollentin, C. K. Lui Wei, and Rudolph Nagy, Westinghouse Electric Corporation, Bloomfield, N. J.

2:50 P.M.—"Luminescence of Three Forms of Zinc Orthophosphate:Mn" by Arthur L. Smith, Tube Department, Radio Corporation of America Lancaster, Pa.

3:15 P.M.—Round-Table Discussion with Dr. G. R. Fonda presiding.

Electronics—Rare Metals

Monday, April 9, 1951

Molybdenum
Irvin R. Kramer presiding

9:15 A.M.—Introductory Remarks.

9:20 A.M.—Keynote Address, "The Present Technical Position of Molybdenum," by Robert Parke, Battelle Memorial Institute, Columbus, Ohio.

9:40 A.M.—"Effects of Working on the Properties of Molybdenum" by E. S. Byron and R. F. Baker, Lamp Division, Westinghouse Electric Corporation, Bloomfield, N. J.

10:05 A.M.—"The Ductility of Recrystallized Wrought Molybdenum" by W. E. Few and G. K. Manning, Battelle Memorial Institute, Columbus, Ohio.

10:30 A.M.—"Brittleness of Recrystallized Molybdenum" by B. Rightmire and John Wulff, Massachusetts Institute of Technology, Cambridge, Mass.

11:00 A.M.—"Some Mechanical Properties of Arc-Cast and Powder-Metallurgy Molybdenum" by J. H. Bechtold and H. Scott, Research Laboratories, Westinghouse Electric Corporation, Pittsburgh, Pa.

11:30 A.M.—"The Rate of Reduction of Tungsten Dioxide by Hydrogen" by B. Kopelman, C. C. Gregg, and E. P. Larson, Metallurgical Laboratories, Sylvania Electric Products Inc., Bayside, Long Island, N. Y.

12:00 M.—"A Thermodynamic Study of the Calcium Reduction Process for Vanadium Metal" by John C. R. Kelly, Research Department, Westinghouse Electric Corporation, Bloomfield, N. J.

Uncommon Metals
Bruce W. Gonser presiding

2:00 P.M.—"The Alloys of Indium with Lead, Tin, Cadmium, and Bismuth" by R. I. Jaffee and Marguerite G. Weiss, Battelle Memorial Institute, Columbus, Ohio.

2:25 P.M.—"Recovery of Germanium from Saw-Cutting Wastes" by V. Ozarow, Electronics Department, General Electric Company, Syracuse, N. Y.

2:50 P.M.—"Progressive Crystallization Purification of Germanium" by J. P. Jordan, Electronics Department, General Electric Company, Syracuse, N. Y.

3:15 P.M.—"Electrodeposition of Germanium" by G. Szekely, Physics Laboratories, Sylvania Electric Products Inc., Bayside, Long Island, N. Y.

3:40 P.M.—"Preparation and Some Properties of Hafnium Metal" by Felix B. Litton, Research and Development Laboratories, The Foote Mineral Company, Berwyn, Pa.

4:05 P.M.—"Effect of Pressure on the Refining of Lithium by Distillation" by R. R. Rogers, Chemical Metallurgy Laboratory, Division of Mineral Dressing and Process Metallurgy, Mines Branch, Department of Mines and Technical Surveys, Ottawa, Canada, and G. E. Viens, Mines Branch, Department of Mines and Technical Surveys, Ottawa, Canada.

Joint Session Electronics—Rare Metals and Electrothermics

Tuesday, April 10, 1951

High-Temperature Processes
LaVerne Eastwood presiding

9:00 A.M.—"Production of High Temperatures by the Combustion of Metals" by A. V. Grosse and R. Miller, Research Institute of Temple University, Philadelphia, Pa.

9:30 A.M.—"Fusion Electrolysis Apparatus for the Production of Metal Borides" by S. J. Sindeband, Mercast Corporation, New York, N. Y., and R. P. Seelig, Electro Metal Corporation, Yonkers, N. Y.

10:00 A.M.—"The Arc Melting of Zirconium Sponge" by H. L. Gilbert, W. A. Aschoff, and W. E. Brennan, II, Bureau of Mines, U. S. Department of the Interior, Albany, Ore.

10:30 A.M.—"Removal of Embrittling Gases from Zirconium" by W. C. Lilliendahl and E. D. Gregory, Research Department, Westinghouse Electric Corporation, Bloomfield, N. J., and D. M. Wroughton, Westinghouse Atomic Power Division, Bettis Field, Pittsburgh, Pa.

11:00 A.M.—"Inert Atmosphere Arc Furnaces for Melting Pure Metals with Particular Reference to Titanium" by W. E. Kuhn, Titanium Alloy Manufacturing Division, National Lead Company, Niagara Falls, N. Y.

11:30 A.M.—"Development of Electrodes for, and Thermal Losses in the Inert Atmosphere Arc Furnace" by W. E. Kuhn, Titanium Alloy Manufacturing Division, National Lead Company, Niagara Falls, N. Y.

Electrothermics

Tuesday, April 10, 1951

High-Temperature Processes (cont'd.)
G. N. Butler presiding

2:00 P.M.—"Energy Requirements of Electric Furnace Products" by G. R. Finlay, Norton Company, Chippawa, Ontario, Canada.

2:30 P.M.—"Production of Fused Stabilized Zirconia" by D. W. Marshall, Norton Company, Chippawa, Ontario, Canada.

3:00 P.M.—"The Relationship of Alpha and Beta Silicon Carbide" by Henry N. Baumann, Jr., Carborundum Company, Niagara Falls, N. Y.

3:30 P.M.—"Exploration with the High Temperature Microscope" (*A Motion Picture*) by The Research Staff (through G. M. Butler), The Carborundum Company, Niagara Falls, N. Y.

Wednesday, April 11, 1951

High-Temperature Materials
R. A. Jones presiding

9:00 A.M.—"Refractory Metal Base Super Alloys" by Claus G. Goetzel and Robert L. Pettibone, Sintercast Corporation of America, Yonkers, N. Y.

9:30 A.M.—"Vapor Deposition of Metals on Ceramic Particles" by James E. Cline and John Wulff, Massachusetts Institute of Technology, Cambridge, Mass.

10:00 A.M.—"Refractory Bodies Composed of Boron and Titanium Carbides Bonded with Metals" by James A. Nelson, Tracy A. Willmore, and Raymond C. Womeldorph, Department of Ceramic Engineering, University of Illinois, Urbana, Ill.

10:30 A.M.—"Design Properties of Cemented Carbide Composition" by John C. Redmond and John W. Graham, Kennametal, Inc., Latrobe, Pa.

11:00 A.M.—"TiC Base Cermets: Oxidation and Structure Study" by Clinton C. McBride, Engineering Experiment Station, Ohio State University, Columbus, Ohio.

High-Temperature Materials (cont'd.)
Julius Harwood presiding

2:00 P.M.—"Thermal Shock Resistance of Brittle Materials, I. General Theory" by H. S. Levine and C. A. Domenicali, The New York State College of Ceramics at Alfred University, Alfred, N. Y.

2:30 P.M.—"The Fabrication and Properties of Be_2C" by John H. Coobs and Walter J. Koshuba, NEPA Project, Oak Ridge, Tenn.

3:00 P.M.—"Mechanism of Adherence of Ceramic Coatings to Steel" by W. N. Harrison, Enameled Metals Section, National Bureau of Standards, Washington, D. C.

3:30 P.M.—"The Zirconia-Yttria System" by Pol Duwez, Frank H. Brown, Jr., and Francis Odell, Department of Mechanical Engineering, California Institute of Technology, Pasadena, Calif.

4:00 P.M.—"The Development and Testing of High-Temperature Oxide Refractories — Beryllia-Alumina-Titania Porcelains" by S. M. Lang, National Bureau of Standards, Washington, D. C.

Thursday, April 12, 1951

Measurements of High Temperatures
Guy H. Fetterley presiding

9:00 A.M.—"Thermocouples for Measuring Temperature up to 4000°F" by Gary Steven, Armour Research Foundation, Chicago, Ill.

9:30 A.M.—"Keeping Industrial Optical Pyrometers in Calibration" by Guy H. Fetterley, Norton Company, Chippawa, Ontario, Canada.

10:00 A.M.—"Emissivity in Optical Pyrometer Measurements" by R. C. Machler, Leeds & Northrup Company, Philadelphia, Pa.

10:30 A.M.—"Thermometry by Measurement of Electrical Noise" by J. B. Garrison, Johns Hopkins University, Baltimore, Md.

11:00 A.M.—"The Measurement of Flame Temperatures" by R. D. Arnold, Heat and Power Division, National Bureau of Standards, Washington, D. C.

11:30 A.M.—"Maintenance of the High-Temperature Scale at the National Bureau of Standards" by R. J. Corruccini, Heat and Power Division, National Bureau of Standards, Washington, D. C.

Round-Table Discussion

High-Temperature Materials, Methods, and Measurements
S. J. Sindeband presiding

This round-table discussion sponsored by the Electrothermic Division will be scheduled from 2:00 to 5:00 P.M.

Industrial Electrolytic

Thursday, April 12, 1951

Round-Table Discussion

2:00–5:00 P.M.—Round-table discussion of requirements for electrochemical products by the defense effort. A panel of experts from Government and industry will lead the discussion.

Theoretical Electrochemistry

Monday, April 9, 1951

Electrode Kinetics
H. H. Uhlig presiding

9:15 A.M.—"The Role of the Cation in the Electrical Double Layer" by David C. Grahame, Moore Laboratory of Chemistry, Amherst College, Amherst, Mass.

9:45 A.M.—"Studies on Electrode Process of Metals" by R. Piontelli, Polytechnic Institute of Milan, Milan, Italy.

10:15 A.M.—"Thermodynamics and Kinetics of Electrolytic Deposits Less than a Monoatomic Layer" by M. Haissinsky, Institut du Radium, Paris, France.

10:45 A.M.—"Electrodeposition Behavior of Traces of Silver, II. Effects of Electrode History and Presence of Other Ions" by John C. Griess, Jr., Oak Ridge National Laboratory, Oak Ridge, Tenn., and John T. Byrne and L. B. Rogers, Massachusetts Institute of Technology, Cambridge, Mass.

11:05 A.M.—"Electrodeposition Behavior of Traces of Silver, III. Transition Region between 'Trace' and 'Macro' Behavior" by John T. Byrne and L. B. Rogers, Massachusetts Institute of Technology, Cambridge, Mass., and John C. Griess, Jr., Oak Ridge National Laboratory, Oak Ridge, Tenn.

11:20 A.M.—"Critical Interpretation of Electrodeposition Studies Involving Traces of Elements" by John T. Byrne and L. B. Rogers, Department of Chemistry and Laboratory for Nuclear Science and Engineering, Massachusetts Institute of Technology, Cambridge, Mass.

11:35 A.M.—"The Electrochemistry of the First Layers of Electrodeposited Metals" by T. Mills and G. M. Willis, Department of Metallurgy, University of Melbourne, Carlton, Victoria, Australia.

12:00 M.—"Residual Currents" by Edgar Newbery, Department of Physical Chemistry, University of Cape Town, Rondebosch, South Africa.

2:00 P.M.—"The Anodic Decomposition of Hydrogen Peroxide" by A. Hickling and W. H. Wilson, Department of Physical and Inorganic Chemistry, University of Liverpool, Liverpool, England.

2:25 P.M.—"Bright Nickel Plating on Metallic Single Crystals in the Absence of Addition Agent" by Henry Leidheiser, Jr. and Allan T. Gwathmey, Virginia Institute for Scientific Research, Richmond, Va.

2:50 P.M.—"A Theoretical Study of the Junction between Anodic and Cathodic Polarization Curves and of Mixed Potentials" by Pierre Van Rysselberghe, Department of Chemistry, University of Oregon, Eugene, Ore.

3:15 P.M.—"The Kinetics of Oxidation-Reduction Electrode Reactions" by J. V. Petrocelli, The Patent Button Company, Waterbury, Conn.

3:40 P.M.—"Overvoltage at Oxidation-Reduction Electrodes" by J. V. Petrocelli and A. A. Paolucci, The Patent Button Company, Waterbury, Conn.

Tuesday, April 10, 1951

Electrode Kinetics (cont'd.)

9:00 A.M.—"The Mechanism of the Hydrogen Evolution Reaction" by J. O'M. Bockris and E. C. Potter, Department of Chemistry, University of London, London, England.

9:30.—"Hydrogen Overvoltage from the Kinetic-Thermodynamic Viewpoint" by Hugh W. Salzberg, Naval Research Laboratory, Washington, D. C.

10:00 A.M.—"Some Factors in Anodic Processes on Corroding Metals" by T. P. Hoar and U. R. Evans, Department of Metallurgy, Cambridge University, Cambridge, England.

10:30 A.M.—"The Influence of Inhibitors on the Dissolution of Iron in Acid Solution" by J. Elze, Technical University (Institute for Physical Chemistry and Electrochemistry), Berlin-Charlottenburg, Germany, and H. Fischer, Siemens & Halske, Berlin-Siemensstadt, Germany.

11:00 A.M.—"The Structure of Metal Deposits Obtained by Electrochemical Displacement upon Zinc" by M. E. Straumanis and C. C. Fang, Department of Metallurgy, University of Missouri, School of Mines and Metallurgy, Rolla, Mo.

11:30 A.M.—"Phase Boundary Potentials of Silver in Foreign Ion Solutions in the Complete Absence of Air" by J. H. Rosenbaum and D. MacGillavry, Department of Chemistry, Clark University, Worcester, Mass.

12:00 M.—"Anode Polarization Effects of Nickel in Sulfuric Acid" by Dennis R. Turner, Westinghouse Research Laboratories, East Pittsburgh, Pa.

General Theoretical Session
H. H. Uhlig presiding

2:00 P.M.—"Catalytic Hydrogen-Deuterium Exchange on Different Crystal Faces of Iron" by Ling Yang, Frick Chemical Laboratory, Princeton University, Princeton, N. J.

2:25 P.M.—"Potentials of Cells with Liquid-Liquid Junctions" by David C. Grahame and J. I. Cummings, Department of Chemistry, Amherst College, Amherst, Mass.

2:50 P.M.—"Hydrogen Cyanide Detection with the Silver Electrode" by H. H. Roth, Physical Research Laboratory, The Dow Chemical Company, Midland, Mich.

3:15 P.M.—"The Application of Thermodynamics to Thermogalvanic Data (A Study of the Silver Chloride Electrode from 25° to 100°C)" by Harry Levin and Charles F. Bonilla, Department of Chemical Engineering, Columbia University, New York, N. Y.

3:40 P.M.—"A Potentiometric Study of the Interaction of Zinc Ions with Sodium Silicates" by J. Fred Hazel, Wallace M. McNabb, and Paul E. Machemer, Department of Chemistry and Chemical Engineering, University of Pennsylvania, Philadelphia, Pa.

4:05 P.M.—"Production of Ozone with Refrigerated Anodes" by E. I. Lash, R. D. Hornbeck, G. L. Putnam, and E. D. Boelter, University of Washington, Seattle, Wash.

4:30 P.M.—"The Deposition of Copper Powder with Controlled Cathode Potential" by G. L. Putnam and J. D. Shepard, University of Washington, Seattle, Wash.

Fisher Scientific Opens Plant in Washington

Fisher Scientific Company opened a new plant in Washington, D. C., December 8th, to serve as a stocking, shipping, and repair center for the Atlantic coastal area. The company manufactures and distributes scientific instruments, apparatus, and chemicals, and in the new plant over an acre of modern shelving is available for the storage of these items.

New Alumina Plant for Alcoa at Bauxite, Ark.

Aluminum Company of America has announced plans to build a new alumina plant near Bauxite, Arkansas, construction to begin immediately.

Designed to process low-grade bauxite ore, the new plant will increase by nearly 50 per cent the amount of alumina now being produced by the company. Alumina is the refined ore from which basic aluminum is obtained by the smelting process. This is in line with Alcoa's effort to make available more aluminum for defense and civilian needs.

The plant will be situated on a 200-acre site adjoining the bauxite mining operations of Alcoa Mining Company, a subsidiary, and will be operated by Aluminum Ore Company, also a subsidiary. It will involve employment of about 1,000 persons.

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Alumina production at the East St. Louis Works of Aluminum Ore Company was approximately doubled by March 15th, it was stated recently. This is a result of the plant-expansion program in progress at this plant, which will cost more than $500,000, and is part of Alcoa's effort to meet defense needs for aluminum.

Gulf Oil to Build Largest Ethylene Unit

Gulf Oil Corporation will build the world's largest single unit for manufacturing ethylene, at Port Arthur, Texas, it was recently announced. This new facility will increase the nation's ethylene production by 12 per cent and will help supply the rapidly expanding chemical industries in the Gulf coast area. Construction is to begin within two months and is scheduled for completion within a year afterward.

Ethylene is a gas used extensively as a raw material in making a large number of chemical products, many of which are valuable for national defense. It will be made from by-product gases produced in the refining processes at Gulf's Port Arthur Refinery.

Japan to Make "Geon" Polyvinyl Chloride

Arrangements were recently concluded between several large Japanese industrial firms and B. F. Goodrich Chemical Company, Cleveland, for the formation of a new company, Japanese Geon Company, Ltd., to construct facilities in Japan to manufacture "Geon" polyvinyl chloride, according to an announcement by W. S. Richardson, president.

Approval for the project has been obtained and construction is expected to begin soon. The manufacture of Geon polyvinyl chloride in Japan from raw materials produced there is believed to be a constructive step toward revitalizing the Japanese economy. Engineering design and manufacturing techniques will be furnished by the Goodrich Company which will also direct initial operation. The new plant, however, will be staffed completely by Japanese. It will be located at Kambara, about 65 miles from Tokyo on Suruga Bay.

Plastics Society Elects Officers

The Society of Plastics Engineers, Incorporated, elected the following national officers for 1951 at its annual meeting, January 18th to 20th, in New York City: for president, Islyn Thomas, president of Thomas Manufacturing Corporation, Newark, New Jersey; for vice-president, Walter O. Bracken, Hercules Powder Company, Wilmington, Delaware; for secretary, Walter F. Oelman, vice-president and general manager of Standard Molding Corporation, Dayton, Ohio; for treasurer, William J. Dunnican, Synvar Corporation, Wilmington, Delaware.

Two Symposia Sponsored by Armour Research

Two scientific symposia, each three-day meetings, have been scheduled by the Armour Research Foundation of the Illinois Institute of Technology. They will be held at the Sheraton Hotel, Chicago.

The "Symposium on Analysis and Metallography of Titanium" will meet June 11–13. Included will be panel sessions on instrumental analysis, gases in titanium, chemical methods, and metallography. This will be the first comprehensive symposium on recent advances in titanium analysis. Program chairman is Dr. Julian Glasser, research metallurgist at the Foundation.

The "Symposium on Surfaces" will meet June 14–16; the geometry and structure of organic and inorganic surfaces, including biological, will be discussed. Program chairmen are Foundation staff members, Charles F. Tufts, associate physicist, and Dr. Walter C. McCrone, supervisor of analytical Chemistry.

Blum Honored by Electrodepositors, London

Dr. William Blum, Chief of the National Bureau of Standards Electrodeposition Section, was recently honored by the Electrodepositors' Technical Society of London, having been elected an honorary member. The Society has conferred this distinction on only six members in its twenty-six years of existence.

Dr. Blum has been at the Bureau since 1909 and has done research in electrodeposition, including electroplating, electrotyping, and electroforming, as well as in the field of analytical chemistry. He is a past president and honorary member of The Electrochemical Society which he joined in 1915.

Anniversary Journal Features Future of Science

A symposium of 15 papers entitled "Science. . .and Tomorrow," written by today's leading authorities on expected scientific developments in many fields of science and technology, appears in the current issue of the *Journal of the Franklin Institute*.

The issue commemorates the 125th anniversary of the Journal, which is published by Philadelphia's famed Franklin Institute and is one of the oldest scientific journals in the United States.

The purpose of the Symposium is to predict *future* developments in science and technology, based upon the considered opinions of the eminent scientists from different fields who have contributed to it. It is a composite picture of what can be reasonably expected in the basic physical and applied sciences. Readers who are interested may obtain copies of the anniversary Journal for $1 from The Franklin Institute, Philadelphia 3, Pennsylvania.

FUTURE MEETINGS OF OTHER ORGANIZATIONS

AMERICAN SOCIETY OF MECHANICAL ENGINEERS PROCESS INDUSTRIES DIVISION, conference, Lord Baltimore Hotel, Baltimore, Maryland, April 17–19.

NEW YORK STATE SOCIETY OF PROFESSIONAL ENGINEERS, annual convention, Hotel Statler, New York City, May 10–12.

DIVISION NEWS

Electronics Division

The Nominating Committee of the Electronics Division has submitted the following nominations for officers during the coming year. Election of officers for this Division will be made at the Spring Meeting. Nominations are as follows:

General Chairman of the Electronics Division—Dr. H. C. Froelich, General Electric Company, Nela Park, Cleveland, Ohio

Vice-Chairman for Luminescence Group—Professor Roland Ward, University of Connecticut, Storrs, Conn.

Vice-Chairman for the Rare Metals Group—Dr. Donald M. Wroughton, Westinghouse Atomic Power Division, Bettis Field, Pittsburgh, Pa.

Vice-Chairman for General Electronics—Mr. Charles W. Jerome, Engineering Department, Sylvania Electric Products Inc., Salem, Mass.

The term of the Secretary-Treasurer has one more year to run, since he is elected for a 3-year term.

During the Washington Meeting the Electronics group will hold a luncheon on Wednesday, April 11th at 12:30 P.M. The business meeting of the Division will be held immediately following this luncheon. The Rare Metals Committee will have a luncheon meeting on Tuesday, April 10th; all persons interested in the Rare Metals meeting are invited to this luncheon.

JOHN R. MUSGRAVE,
Secretary-Treasurer

Electrothermic Division

New by-laws for the Electrothermic Division were approved by the Board of Directors on December 2, 1950. These by-laws were drawn up by a Divisional committee, consisting of C. H. Chappell, A. T. Hinckley, and M. Udy, to correct inconsistencies and more fully define the functions of the Division. The important changes and additions include a statement of purpose; election of officers and members-at-large for two years, instead of one; more satisfactory procedures for nominating, electing, and replacing the officers and members-at-large; more explicit definitions of duties of officers; methods for handling Divisional funds; and stipulations as to the bussiness and technical meetings.

The members of the Division will pass on these new by-laws at its annual business meeting, to be held in Washington during the regular Spring 1951 meeting of the Society. Mimeographed copies of the entire by-laws may be obtained by writing to the Secretary, The Electrochemical Society, 235 West 102nd Street, New York 25, N. Y.

JULIAN GLASSER, *Chairman*

Theoretical Division

The Theoretical Division will elect officers to serve for a two-year term at its business meeting, to be held at 1:30 P.M., Tuesday, April 10th, at the Washington Meeting of the Society.

The nominating committee consisting of Dr. Thomas P. May, Chairman, Dr. J. Clark White, and Dr. Harry R. Copson have proposed the following nominations:

Chairman—Dr. Walter J. Hamer, National Bureau of Standards, Washington, D. C.

Vice-Chairman—Dr. Paul Fugassi, Carnegie Institute of Technology, Pittsburgh, Pa.

Secretary-Treasurer—Dr. André de Béthune, Boston College, Boston, Mass.

Additional nominations may be made by ten active members of the Division in writing to the Secretary-Treasurer, or by individual members from the floor at the business meeting. Such nominations should carry the assurance of the nominee's willingness to serve.

H. H. UHLIG, *Chairman*

SECTION NEWS

Cleveland Section

The Cleveland Section met on February 13th at the Cleveland Engineering Society. After the social hour and dinner, Mr. R. C. Hienton, Sales Manager of the Cleveland Electric Illuminating Company, spoke briefly on the great industrial expansion now taking place in the Cleveland area, and the plans of his Company to supply the area with relatively cheap electric power.

Next, the guest speaker for the occasion, Dr. R. D. Williams of the Aluminum Company of America, spoke on "Fundamentals of Corrosion."

Dr. Williams defined corrosion as the chemical reaction of metals with the environment in which they are placed. Most corrosion reactions, he said, proceed by an electrochemical mechanism. Experimental methods developed by Evans and Hoar, Petrocelli, Wagner and Troud, Brown and Mears and Brown and others demonstrate this fact adequately.

The speaker stated that although the effects of polarization in retarding reaction rates on electrochemical corrosion processes are well known, the complete and exact nature of polarization is not fully understood. There is a substantial quantity of data that indicates that polarization measured in the usual manner is the result of several fundamental phenomena.

Physically, Dr. Williams said, two general types of polarization have been identified: namely, resistance and electrochemical polarization. In the usual type of polarization measurement, he stated that these two types are generally combined. Such polarization measurement does not permit the separation and identification of these two types, with the result that this measurement fails to distinguish the factors controlling the extent of polarization.

L. E. PUCHER, *Secretary*

India Section

The first technical meeting of the India Section of the Society for 1951 was held on February 9th at the Indian Institute of Science, Bangalore, with Mr. J. Balachandra presiding. Mr. K. Seshadri, National Chemical Laboratory of India, Poona, presented a paper on "Separation of Solid Ammonium Persulphate from the Electrolyte in the Electrolysis of Ammonium Sulfate."

Mr. Seshadri stated that due to the high solubility of ammonium persulfate, it is difficult to separate it from the electrolyte during the electrolysis of saturated ammonium sulfate solution. As such, it is the general practice to obtain the least soluble potassium persulfate in solid form from the electrolytic cell for the manufacture of hydrogen peroxide. The speaker described a method developed to obtain solid ammonium persulfate directly from the cell by a study of the ternary system: ammonium sulfate—ammonium persulfate—water.

The acid concentration, Mr. Seshadri said, has an important influence on the ternary system: it decreases the solubility of the components and alters appreciably the solubility relationship in such a way that ammonium sulfate will be in equilibrium with lower proportion of ammonium persulfate. Ammonium sulfate crystals and sulfuric acid are added at intervals and solid persulfate is continuously obtained from the cell.

This study, he said, has an important bearing on the separation of highly soluble anode products from the electrolyte, since they are, in general, thermochemically unstable and cannot be obtained in solid form by the simple evaporation process.

The meeting terminated after a lively discussion.

T. L. RAMA CHAR, *Secretary-Treasurer*

San Francisco Section

A "Long Range Plan for Power Development in Region 2 of the Bureau of Reclamation" (Central Valley Project in California) was the subject of a talk by Mr. Oliver O. Rands of the Bureau of Reclamation, Sacramento, California, before the San Francisco Section at its January 17th meeting.

Mr. Rands began his talk by tracing the history of the Central Valley Project from its beginning in 1919, when it was first presented to the state of California, through the various legislation concerning it which was enacted in 1933, 1937, 1939, and 1944. At present, the project has two main objectives: flood control and irrigation in California's great central valley. Salinity control, fish and game benefaction, water table replenishment, and power development are incidental to the flood control and irrigation facilities; he said that 28 power generating plants are included in the comprehensive plan for the project.

Discussing the power development features of the project, the speaker pointed out the differences between the basic operation of the Bonneville installation on the Columbia river and the Central Valley units. Power generated at Bonneville is almost entirely hydroelectric and operation is based upon a 100 per cent load factor. In the Central Valley units a much lower load factor is used with the hydroelectric power facilities being firmed up by steam generating plants. Tie-ins between the two units would permit more flexibility in the Central Valley operation as far as the relationship between irrigation and development is concerned.

Mr. Rands quoted the law concerning the distribution of power to private consumers: If there is a surplus of power over and above the amount required by public agencies, any large user can apply for all or part of it. However, the law does not permit the negotiation of a firm contract, since it allows for the cancellation of a contract with a private consumer if the needs of public agencies are not satisfied.

The present price for project power is 5.1 mils per kilowatt hour operating at a 50 per cent load factor. On a surplus basis, the price is 3.3 mils per kilowatt hour.

The speaker mentioned that 250,000 to 300,000 kilowatts per year is the estimated average annual increase in power consumption in the central valley area.

The talk was followed by an interesting discussion of the problem of power supply for industry in northern California.

* * *

At a previous meeting, on November 15th, the Section was addressed by Dr. Edwin F. Orlemann, Associate Professor of Chemistry, University of California, on the subject of "Polarography."

Dr. Orlemann described the polarograph as an instrument that is quite simple as to equipment, construction, and manipulation but which can be used to investigate very complex systems. Also, the interpretation of results, he said, can be simple or complex depending upon the system being studied and how well it lends itself to this method. Dr. Orlemann then developed his subject in considerable detail and his presentation of a highly technical matter to a group with a widely varied background was excellent and greatly enjoyed by all who attended.

R. F. BECHTOLD, *Secretary-Treasurer*

PERSONALS

JAMES L. HYDE, who has been with the Du Pont Company's Jackson Laboratory at Wilmington, Delaware, is now on the staff of the Argonne National Laboratory, Chicago, Illinois.

KARL H. KOROPP, formerly associated with Cerro de Pasco Copper Corporation, in Oroya, Peru, has accepted a position with the Kennecott Copper Corporation at the Utah Refinery, Garfield, Utah.

ALVIN GLASSER has resigned his position at Reaction Motors Incorporated, Dover, New Jersey, to join the staff of the Argonne National Laboratory, Chicago, Illinois.

CHESTER G. BORLET, who joined United Chromium Incorporated, in Detroit, a few months ago, was recently transferred to the company's Los Angeles office as District Manager in charge of sales and service for the West Coast area.

SAM KURLANDSKY, former research chemist at Burgess Battery Company, Freeport, Illinois, is now attending the University of Iowa, Iowa City.

Y. F. HARDCASTLE

Yellott F. Hardcastle of Easton, Maryland, died on February 5th in Presbyterian Hospital, Philadelphia. He was 67 years old.

Mr. Hardcastle was born at Easton, Maryland, and was graduated from Lehigh University in 1905. He joined the Pennsylvania Salt Manufacturing Company in 1909, becoming vice-president in 1928, a position he held until he retired in 1949. He had been a member of The Electrochemical Society since 1915.

NEW MEMBERS

In February 1951 the following were elected to membership in The Electrochemical Society:

Active Members

FRED M. BERKEY, Monsanto Chemical Company, 1700 S. Second Street, St. Louis, Missouri (Industrial Electrolytic)

WAYNE Z. FRIEND, International Nickel Company, Inc., mailing add: 790 Riverside Drive, New York 32, N. Y. (Corrosion)

JAMES C. HARTWELL, Willard Storage Battery Company of California, mailing add: Box 6850 E. Los Angeles Station, Los Angeles 22, California (Battery)

ANDRE JULIARD, University of Brussels and University of Pennsylvania, mailing add: 441 Brookhurst Avenue, Narberth, Pennsylvania (Theoretical Electrochemistry)

JAMES A. B. MILNE, North American Cyanamid Ltd., Niagara Falls, Ontario, Canada (Electrothermic)

NARAYANASWAMY B. NARASIMHAIYENGAR, Superb Chemicals & Cosmetics, 50, Gandhinagar, Bangalore City, India (Electrodeposition and Industrial Electrolytic)

SEYMOUR SENDEROFF, National Bureau of Standards, Washington 25, D.C. (Electrodeposition)

PAUL T. WOODBERRY, Battelle Memorial Institute, mailing add: 2973 Norwood Street, Columbus, Ohio (Electrodeposition)

Associate Members

GOPALKRISHNA N. BHAT, Indian Institute of Science, Chemical Engineering Section, Bangalore 3, India

IDA M. P. PATTERSON, Naval Research Laboratory, mailing add: 4614 Livingston Road, S.E., Washington 20, D.C. (Battery)

BOOK REVIEW

ION EXCHANGE RESINS by Robert Kunin and Robert J. Myers. Published by John Wiley & Sons, Inc., New York, and Chapman & Hall, Ltd., London, 1950. 212 pages, $4.75.

To many a chemist or chemical engineer, ion exchange is at the same time one of the best-known and one of the least-known topics. He knows enough about it to wonder frequently whether he should not use this tool in some phase of a problem; but he does not know enough to do so without recourse to a reference book giving him a simple picture of the present status of the field and a comprehensive list of the more significant publications and contributions. Kunin and Myers' "Ion Exchange Resins" serves this purpose well. With its 615 references, it is a very valuable starting point for the worker in the field and—more important—for the prospective worker who is looking for a concise and well-informed introduction.

The book is strongest in its discussion of history, the evaluation of resins, and their application in water conditioning. It does not (and was not intended to) discuss at length the theory of exchange rates and equilibria. However, the chapters on these subjects serve to arouse the curiosity of the technical reader and refer him to the source material in the literature.

The book includes one introductory and historical review, three chapters dealing with theory and resin characteristics, one chapter on the synthesis of resins, five chapters on applications, and two chapters on evaluation of resins and unit design. The plan gives proper space to the various phases of the subject and has been so formulated that the individual chapters can, for the most part, be read independently, with little reference to the preceding or subsequent sections. This principle has perhaps been carried too far; in particular, the theoretical discussion is unnecessarily weakened by the artificial division of Chapters 2, 3, and 4 covering the theory and mechanism of ion exchange and cation and anion resin characteristics. This division results in some repetition (e.g., emphasizing, in two places, the effect of hydrated ionic radii on selectivity) and in a lack of clarity in discussion of the various theoretical and experimental correlations of equilibrium data.

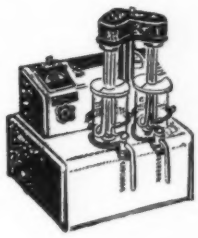
The historical introduction, and particularly the chapters on applications, have considerable merit, giving the reader a sound view of the scope of the field, its present status, and its principal advantages and limitations. A brief mention of Austerweil, "grand old man" of ion exchange in France, might have been in order in the historical review.

For the first time, syntheses of some resins, including experimental procedures, are presented in an organized way by a group of authors thoroughly acquainted with this aspect of ion exchange. Details of the preparation of recent materials, including the sulfonated polystyrene type cation exchangers and the quaternary amine type exchangers, have not been presented. However, in this interesting section, the authors give examples of recently prepared "tailor-made" resins of unusual selectivity toward specific ions, which point the way toward future broadening of the usefulness of exchange resins.

Among the applications, proper emphasis is given to water softening and to deionization in the excellent Chapters 7 and 8. Regarding the methods of application (Chapter 6), however, the very brief reference to moving-bed techniques might well have been expanded to include mention of its potential advantages and disadvantages (such as resin inventory, savings, equipment cost, and wear). Further, in this chapter, or in one of the subsequent application chapters, a more comprehensive discussion of the chromatographic separation technique and its most conspicuous successes would have been of interest; for example, among the achievements not stressed was the isolation, by means of this technique, of prometheum (by Marinsky and Glendenin).

Chapter 11 (on Exchange Resin Evaluation) is of considerable interest to any potential user. The authors emphasize properly the economic importance of resin life characteristics and the factors determining resin life. Unfortunately, the test descriptions and life data on commercially available resins are rather sketchy. Although the chemical engineer would perhaps want

Eberbach DYNA-CATH
magnetic mercury cathode



For determination of aluminum in steel, aluminum in zinc base alloys, and other separations—DYNA-CATH is a completely new high speed mercury cathode apparatus which accelerates and does a more complete job in the analytical separation of metals. For example, DYNA-CATH quantitatively removes 5 grams of iron from 100 ml. of electrolyte in 60 minutes. It overcomes the difficulties which have prevented utilization of the mercury cathode as an analytical tool.

Write for Bulletin 220.

Eberbach & Son Company
ANN ARBOR, MICH.
LABORATORY APPARATUS & SUPPLIES

to see more detailed economic information on process design in Chapter 12, it contains an adequate introductory analysis of water-conditioning costs.

The existence of a few obvious misprints should be stated: for example, pages 19, 26, 76 [the water softening equations should result in $Mg(OH_2)$ instead of $Mg\ CO_3$], 86, and 135.

The authors are to be commended for making available a very useful, clear, and comprehensive introduction to ion exchange, in addition to an invaluable compilation of references.

WALTER JUDA

ANNOUNCEMENTS FROM PUBLISHERS

FLUORINE CHEMISTRY, Volume I, edited by J. H. Simons. Published by Academic Press Inc., New York, 1950. 615 pages, $12.00 (Volume II in preparation).

In this work fluorine chemistry is treated as a unit with all the aspects of its basic chemistry presented. The various chapters were written by leading authorities in their fields; much of the material is the first integrated data on the subject. Theoretical and descriptive phases are covered as well as the many commercial possibilities of the fluorine compounds. Contents include: nonvolatile and volatile inorganic fluorides, halogen fluorides, boron trifluoride, hydrogen fluoride and catalysis, preparation and properties of fluorine, fluorocarbons with their production, properties and derivatives, etc.

HEAT INSULATION by Gordon B. Wilkes. Published by John Wiley & Sons, Inc., New York, 1950. 224 pages, $4.00.

This is a modern treatment of industrial thermal insulation. The author has assembled valuable technical and laboratory information on insulating methods and materials. He describes methods for heat transfer tests, reflective insulation, conductivity and emissivity data, measurement methods, etc. Thorough bibliography.

Chemical Translations
by mail
Werner Jacobson, B.S., M.S.
Translator and Chemist
Microfilms Accepted
German, Swedish, Danish-Norwegian, French, Spanish, Portuguese, Italian, Russian, Polish, Chinese.
334 South Mozart Street Chicago 12

LETTERS TO THE EDITOR

Strained Budgets

Dear Sir:

The increasing number of papers submitted for presentation at meetings and for publication in the JOURNAL presents our Society with a difficult problem. In the absence of any sizeable and dependable income from advertising, our limited budget does not allow an increase in the size of the JOURNAL at this time. The result will be a much greater delay in the publication of accepted papers—a disquieting prospect. I believe we have to face realities and try now to make the most out of that part of the JOURNAL which will be of greatest value for future reference. This refers to the Technical and Feature Sections whose quality will make the JOURNAL stand or fall. In the interest of strengthening the JOURNAL, and as a partial solution for its financial problem, I want to make the following suggestions.

1. Limit the "Editorial" and all Society news of importance to a total of one page;

2. Omit the whole page listing the activities of the Society (they are evident from the list of Division Officers printed on the back page of the JOURNAL);

3. Omit all newsy items including Local Section Reports, Personals, Notes from Industry, Employment Box, etc. Omit pictures of persons or objects almost entirely. Do not, however, give up Book Reviews;

4. Encourage or demand a further reduction in the number and size of graphs and pictures submitted with papers;

5. Omit the printed "Discussions" of papers presented at preceding meetings. Any minor points made in these comments need not be preserved for posterity, any major ones should deserve a separate paper or "note";

6. Initiate a new policy of printing condensed papers in lieu of full length papers in the JOURNAL. These condensations should contain *all essential data in summarized form.* Including one or two figures they should not exceed one-half page per paper, perhaps in smaller print. They should give a good account of those papers that were presented at meetings but could not be accepted, or were not submitted for full length publication. They should be of greater value than mere abstracts.

All the items thus omitted from the JOURNAL proper could be brought to the members' attention in much cheaper form, such as a mimeographed "News Letter" or "Bulletin." This could be prepared in our New York office and possibly sent out along with the JOURNAL at the same mailing charge. Cheap paper could be used. This would increase mainly mechanical office work. I believe that the technical part of our JOURNAL could thus be increased by 40 per cent or more, with a small increase in total cost.

The suggestions made here may appear to be rather radical, considering the type of interesting and well rounded publication to which we have been accustomed for so many years. However, let me hasten to add that they should in no way express a lack of appreciation for the many editorial and other contributions. Likewise, they are not meant to carry a reflection upon the standard of the nontechnical contributions. The suggestions are made solely in the interest of making the JOURNAL a stronger technical publication, by cutting the frills to the bone, and without tapping new sources of income.

H. C. FROELICH
Cleveland, Ohio

● The above letter grapples with the problem of strained budgets combined with increased number of technical papers submitted for publication. Should the Society eliminate editorials? Should we drastically reduce the feature and news section? Or alternatively should we have an all-out campaign for more sustaining members among our friends in industry and for an increased number of advertisements by those whose products deserve the attention of our readers? The Board of Directors and Editorial Staff welcome your suggestions.—ED.

A Nitric Acid — Nitrous Acid Concentration Cell

Dear Sir:

If nitric oxide is bubbled in series through two half-cells containing equal volumes of tenth-molar nitric acid with a bridge of the same solute, a potential difference will be set up between the solutions which can be detected and measured by immersing in each half-cell, a platinized platinum electrode appropriately connected in a potentiometer circuit.

Before trying this experiment the air should be expelled from the system by carbon dioxide or nitrogen, and if

possible the nitric acid used should be free of oxides of nitrogen.

As soon as the stream of nitric oxide begins to flow through the assembly, the potential will start to rise; after several minutes it will reach a maximum, and then it will decrease to a value near zero. In a typical run, at 25°C, the first reading obtained was 9.7 millivolts; after 26 minutes it was 21.3 millivolts. The potential then slowly fell to a value of −3.8 millivolts about 79 minutes after the experiment was begun.

Nitric oxide reacts with nitric acid to form nitrous acid according to the equation

$$HNO_3 + H_2O + 2NO \rightleftharpoons 3HNO_2.$$

If all the entering nitric oxide is not used up in the first half-cell, it at least reaches that cell at a lower partial pressure than it has on entering the first cell. Nitrous acid is therefore at first formed more rapidly in cell number 1 than in cell number 2, and therefore concentration differences of nitric acid, nitric oxide, and nitrous acid arise in the two cells. Since nitrous acid has a higher oxidation potential [W. C. Moore, *J. Am. Chem. Soc.*, **35,** 333 (1913).] than nitric acid, cell number 1 will be positive. As the reaction proceeds, the system in the first cell approaches equilibrium; more nitric oxide reaches the second cell and as a result the concentration differences between the cells gradually decrease and ultimately disappear. When this occurs the potential becomes approximately zero, any small residual potential being due to inherent differences between the platinum electrodes used.

This note is based on experiments carried out at Columbia University, New York City, in 1912.

William Cabler Moore
Stamford, Connecticut

RECENT PATENTS

Selected for electrochemists by Fred. W. Dodson, Chairman of the Patent Committee, from the Official Gazette.

December 12, 1950

Batt, W. E., 2,533,709, Lead-Acid Type Electric Accumulators

Lohr, J. M., 2,533,736, Electric Resistance Element and Method of Heat-Treatment

Cacciotti, V. E., 2,533,763, Quick Detachable Battery Connector

Pitt, A., 2,534,056, Deferred Action Battery

Fread, C. L., 2,534,165, Agitating Electroplating Mechanism

Zikmund, B. A., 2,534,190, Heat-Resistant Steel Alloy

December 19, 1950

Cox, G. C., 2,534,234, Electrocoating Method

Cahoon, N. C., 2,534,336, Primary Galvanic Cell

Blake, I. C., and Mullen, J. B., 2,534,-403, Primary Cell

Towle, W. L., 2,534,485, Photochemical Production of Benzene Hexachloride

Jeppson, G. N., 2,534,518, Electrically Heated Tunnel Kiln

Emanuel, B. D., 2,534,582, Storage Battery

Swinehart, C. F., 2,534,638, Electrolytic Production of Fluorine

Ham, G. P., and Barnes, R. B., 2,534,-907, Process of Purifying Hydrocarbon Liquids

Kasper, A. S., 2,534,911, Process of Removing Hydrogen Embrittlement of Bright Nickel Electrodeposits

December 26, 1950

Briggs, R. E., 2,535,035, Method of Electrolytic Water Softening and pH Adjustment

Dinsley, A., 2,535,395, Electrophoretic Apparatus for Research

Jackson, J. M., 2,535,420, Process of Producing Silicon Steel of High-Directional Permeability

Vibbert, B. L., 2,535,523, Battery-Charging Table

Ray, W. A., 2,535,602, Thermocouple for Gas or Oil Burners

Bassereau, G. J. A., 2,535,622, Production of Metal from Its Ore

Louzos, D. V., 2,535,742, Primary Cell with Electrodes of Magnesium and Magnesium Permanganate

Teplitz, A., 2,535,966, Electrolytic Apparatus for Cleaning Strip

January 2, 1951

Baily, T. F., 2,536,020, Method of Making Silvery Iron From Blackband Ore

Clarke, W. C. Jr., 2,536,033, High-Temperature Stainless Steel

Clarke, W. C. Jr., 2,536,034, High-Temperature Stainless Steel

Salvador, F., 2,536,229, Electric Crucible

Guyer, R., 2,536,442, Container

Ray, W. A., 2,536,464, Thermocouple

Waye, B. E., and Mitchell, A. G., 2,536,586, Method of Depositing Fluorescent Materials by Sedimentation

Butler, E. M., 2,536,591, Electrolytic Water Correction Device

Ruben, S., 2,536,696, Primary Cell

Ruben, S., 2,536,699, Alkaline Dry Cell

Ruben, S., 2,536,697, Primary Cell and Battery

Ruben, S., 2,536,698, Battery Cell and Unit

Flint, O., 2,536,734, Cataphoretic Deposition of Boron

Tama, M., 2,536,859, Method and Device for Pumping Molten Metals

Emanuel, W. A., Sweeney, K. O., and Weis, C., 2,536,877, Cathode

Corbett, L. B., 2,536,912, Electrolysis Etching Device

January 9, 1951

Chester, A. E., and Ackermann, K. J., 2,537,032, Acid Zinc Electroplating Compositions and Method

Lilliendahl, W. C., 2,537,067, Production of Thorium

Brattain, W. H., 2,537,255, Light-Sensitive Electric Device

Brattain, W. H., 2,537,256, Light-Sensitive Electric Device

Brattain, W. H., 2,537,257, Light-Sensitive Electric Device

Ellefson, B. S., 2,537,262, Luminescent Zinc Fluoride and Method of Preparing Same

Condit, P. C., 2,537,304, Electrolytic Process and Apparatus

Mohling, G., and Wilson, T. Y., 2,537,-477, Valve and Turbine Steels

Reid, R. J., 2,537,630, Photochlorination of Polybutadiene

Bartovics, A., 2,537,641, Chlorination of Synthetic Polymers

January 16, 1951

Smith, E. K., 2,538,053, Tantalum Anode for Gas Filled Tubes

Smith, E. K., 2,538,054, Chromium Sulfate Coated Electrode

Spence, H. R., and Hooker, H. W., 2,538,055, Electrolytic Process for Removing Oxide from the Surface of Metals

Booe, J. M., 2,538,078, Potential Producing Cell

Booe, J. M., 2,538,079, Potential Producing Cell

Milton, C. L. Jr., and Nielson, C. A., 2,538,160, Method of Electroforming Molds

Hannon, A. H., 2,538,242, Apparatus for Processing Workpieces

Offenhauer, C. M., 2,538,263, Method of Producing Ductile Cast Iron

Mason, J. F., and Hesch, F. H., 2,538,-317, Treatment of Aluminum Sheets

Green, D. F., and Salmon, J. E., 2,538,-417, Indium Plating

Pakswer, S., and Benes, J. J. Jr., 2,538,-588, Photocell

Thys, E., 2,538,603, Furnace Electrode Holder

NOTES FROM INDUSTRY

EXPERIMETRICS, INC. has announced a consulting service for the design, analysis, and interpretation of experiments on laboratory, pilot plant, and full production scale. Also offered are correlation analysis and quality control. The latter is an aid in setting and maintaining product specifications; the former, a way of reducing unwieldly data to simple, understandable form. These techniques have become indispensible in biological research and control of mass production.

In addition to its consulting service, the company plans to train its clients in the most efficient use of these powerful tools. A free booklet, "Experimetrics," describing the advantages of modern statistical methods is available from EXPERIMETRICS, INC., Station I, Buffalo 22, N. Y.

Products

KOCOUR COMPANY, Chicago, recently placed on the market its new high-quality, laboratory type selenium rectifier, available at a reasonable price (Model 5A). The unit's smooth d-c output, accuracy, and long life are stressed, as well as years of trouble-free service for continuous duty. Rugged, welded steel cabinet and complete electrical overload protection.

INDUCTION REGULATORS—a new line of three-phase, dry-type, induction voltage regulators to meet the increasing industrial demand for regulated three-phase power at low voltages has been announced by General Electric's Transformer and Allied Product Divisions, Schenectady, New York.

The line includes both self-cooled and forced-air-cooled regulators in standard 10 per cent and 20 per cent (raise and lower) ranges of regulation, in ratings from 120 to 600 volts, and from 12 to 85-kva. The new arrangement offers a considerable saving for users.

Publications

RELAYS, Mercury-Plunger—How relay maintenance can be eliminated is explained in detail in the new, illustrated Catalog No. 17, describing H-B mercury plunger relays. Complete specifications given covering normally-open and normally-closed tubes and relays with various mountings; diagrams and illustrations show how they work. For free copy, write H-B Instrument Company, Dept. MP 14, 2633 Trenton Avenue, Philadelphia 25, Pa.

GENERAL ELECTRIC COMPANY, Schenectady 5, New York, has announced as available a four-page, two-color bulletin (GEA-5470) on "Tri-Clad*" high-speed synchronous generators. This covers generators for standby, portable, and prime-source power in ratings from 1.875 to 50 kva with frequencies of 60 and 400 cycles. Four designs are described, enumerating construction features of the new generators and including a comparison table of ratings.

FIELDER ISRAEL, former vice-president in charge of production of National Carbon Division of Union Carbide and Carbon Corporation, has been named assistant to the president of General Dry Batteries, Inc., Cleveland.

Personalities

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA has announced the appointment of Edwin D. Foster, retired Chief of Naval Material, as Director of the newly established Mobilization Planning Department. Vice Admiral Foster will coordinate the company's activities in effectively meeting the Government defense requirements.

B. F. GOODRICH CHEMICAL COMPANY, Cleveland, plant operators for the government synthetic rubber plant at Institute, W. Va., announced the following key personnel appointments: Tom B. Nantz has been named plant manager and will be responsible for the operation of the 90,000 long ton capacity plant, largest in the GR-S rubber program; Walter E. Brodine is appointed plant engineer; Sigmund S. Michels is technical manager at the Institute plant; Anton Vittone is production manager; Gerald A. Balzersen is manager of industrial relations; George R. Erb has been appointed plant auditor; and John R. Mix has been named staff manager.

GENERAL ELECTRIC COMPANY, Schenectady, has announced the election of three executive vice-presidents, to fill newly-created posts with responsibilities as assigned by the G-E president. They are: Henry V. Erben, Schenectady, N. Y.; Hardage L. Andres, Bridgeport, Conn., and Roy W. Johnson, New York City. Their headquarters will be at the G-E executive offices in Schenectady.

KAISER ALUMINUM & CHEMICAL CORPORATION

Rapid expansion has created excellent opportunities in the fields of chemical, electrochemical, and metallurgical engineering. No experience is necessary; however, it is preferred that the candidate be 24 to 28 years of age with a B.S. degree in the above-mentioned fields and is willing to move as further opportunities develop. Salary is open. Training is to be in the state of Washington with possible move to Louisiana upon its completion.

Opportunities for more advanced positions are available for men with advanced degrees in the above-mentioned fields or graduate engineers with some experience in aluminum reduction.

Reply giving full details of educational background and experience to Frank H. Wickhorst, 1924 Broadway, Oakland, California.

EMPLOYMENT SITUATIONS

Positions Available

RESEARCH CHEMIST OR METALLURGIST, with experience in the development of processes for production of metals, for work on new methods of producing titanium. Prefer man with M.S. or Ph.D. degree. New England. *Reply to Box A-222.*

NAVAL RESEARCH LABORATORY has announced that it has available several positions of interest to Society members. At present, Civil Service status is not a prerequisite for consideration. A list of the vacancies to be filled may be obtained from the Personnel Division, Code 1817, Naval Research Laboratory, Washington 25, D. C.

Correction

In the December 1950 issue of the JOURNAL pages 470 and 471, the figure captions in the discussion by Jacquet and Weill are transposed: Fig. 8 should be 7*b*, 7*b* should be 7*a*, 7*a* should be 9, and 9 should be 8.